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09/864,055

05/23/2001

Ellis Lee

JIAN0094-C1-CIP

3363

7590

01/05/2004

J.C Patents  
4 VENTURE  
SUITE 250  
Irvine, CA 92618

EXAMINER

NGUYEN, CUONG QUANG

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 01/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/864,055

Applicant(s)

LEE ET AL.

Examiner

Cuong Q Nguyen

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6, 25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

Art Unit: 2811

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or  
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Jain et al. (US 6,376,371).

Jain et al. discloses a metallization structure (the metallization structure is capable performing as a bonding pad structure and is considered as a bonding pad structure) comprising: a copper layer (36) ( Col.5, lines 25-30); a passivation layer (56) formed over the copper layer having a pad window to expose a portion of the copper layer; a barrier layer (64, a TaN layer) (col.5, line 45) conformal to a profile of the pad window and extended along the surface of passivation layer from the pad window; and an aluminum layer (66) (col.5 lines 59-60 and 27-30) located in the pad window. See Jain et al.'s Fig.6.

Art Unit: 2811

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jain et al. in view of Lien (US 5,723,822).

Jain et al. discloses all the limitations of claim 1 above but does not explicitly teach that the aluminum pad located in the pad window is connected to a bonding wire.

It is conventional and also taught by Lien (Fig.1) that the final structure of semiconductor device is commonly in a form of a semiconductor packaging and a bonding pad structure comprising a bonding pad layer (116) located in the pad window is connected to a bonding wire (114) in order to provide an electrical connection between integrated circuit and its external pins of the semiconductor packaging. Col.1 lines 45-56.

It would have been obvious to one of ordinary skill in the art to form the Jain et al.'s device such as the bonding pad located in the pad window is connected to a bonding wire as taught by Lien in order to provide a conventional electrical connection between integrated circuit and its external pins of the semiconductor packaging.

Art Unit: 2811

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jain et al. in view of Joshi et al. (US 5,955,781).

Jain et al. discloses all the limitations of claim 1 above but does not explicitly teach that the aluminum pad located in the pad window is connected to a solder ball.

It is conventional and also taught by Joshi et al. (Fig.8) that the final structure of semiconductor device is commonly in a form of a semiconductor packaging and a bonding pad structure comprising a bonding pad layer (248) located in the pad window is connected to a solder ball (208) in order to draw the heat from the substrate to outside the semiconductor device. Col.7 lines 15-25.

It would have been obvious to one of ordinary skill in the art to form the Jain et al.'s device such as the bonding pad located in the pad window is connected to solder ball as taught by Joshi et al. in order to draw the heat from the substrate to outside the semiconductor device.

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1-6 have been considered but are not persuasive.

Applicants argue that Jain et al. does not teach a bonding pad structure. In response, as above discussed, it is noted that a bonding pad is a conductive layer can be bond to another conductive layer, so Jain et al.'s metalization structure can be

Art Unit: 2811

function as a bonding pad structure. Moreover, "a bonding pad structure" in the preamble of claim is considered as an intended use limitation. An intended use found in the preamble is not afforded the effect of a distinguishing limitation unless the body of the claim sets forth structure which refers back to, is defined by, or otherwise draws life and breath from the preamble. In re Casey, 152 USPQ 235 (CCPA 1967).

Applicants argue that Jain et al. does not teach "a barrier layer conformal to a profile of the pad window and an aluminum pad located in the pad window. In response, as above, Jain et al. clearly teaches these limitations.

#### ***Conclusion***

**4. Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 872-9306. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.**

**5. Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to CUONG Q NGUYEN whose telephone number is (703) 308-1293. The Examiner is in the Office generally between the hours of 6:30 AM to 5:00 PM (Eastern Standard Time) Monday through Thursday.**

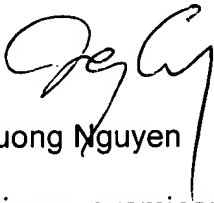
Serial Number: 09/864,055

Page 6

Art Unit: 2811

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Eddie who can be reached on (703) 308-1690.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center Receptionists whose telephone number is 308-0956.

A handwritten signature in black ink, appearing to read 'Cuong Nguyen', with a stylized, cursive script.

Cuong Nguyen

Primary examiner

December 16, 2003